

Patent Docket: 7000/1
Serial No. 09/774,157

In The Claims:

Please amend claims 1-36 as follows:

1. (Currently Amended): An instrument for assaying the concentration of one or more of nitrogen dioxide, nitrogen monoxide and ozone in an air sample, the instrument comprising:
 - an equilibrium altering means for changing the kinetics equilibrium between nitrogen monoxide and nitrogen dioxide in the presence of ozone and oxygen; and
 - a first gas sensor for quantifying the concentration of a first gas selected from the group consisting of nitrogen dioxide, nitrogen monoxide or ozone;wherein the instrument is adapted to take a reading of ~~measure~~ the concentration of the first gas at a plurality of time points during the process of the kinetics whilst the ~~equilibrium~~ between nitrogen monoxide and nitrogen dioxide in the presence of ozone and oxygen being is altered, and to thereby calculate the concentration of at least one of nitrogen dioxide, nitrogen monoxide and ozone in the air sample.
2. (Original): The instrument of claim 1, wherein the equilibrium altering means comprises an ultraviolet light source.
3. (Original): The instrument of claim 2, wherein the ultraviolet light source is switched on and off periodically.

Patent Docket: 7000/1
Serial No. 09/774,157

4. (Currently Amended): The instrument of claim 1, wherein the first equilibrium altering means comprises a means for adding at least one gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide or ozone.

5. (Original): The instrument of claim 1, wherein the equilibrium altering means comprises a means for removing one or more of nitrogen monoxide, nitrogen dioxide, ozone or oxygen.

6. (Currently Amended): The instrument of claim 1, wherein the instrument is further adapted to measure the concentration of the first gas sensor is an ozone sensor at a plurality of time points and to thereby monitor the rate at which the balance between nitrogen dioxide and nitrogen monoxide changes in response to the effects of the equilibrium altering means.

7. (Currently Amended): The instrument of claim 2, wherein the instrument is further adapted to allow for the effects of at least one factor, which factor is selected from the group consisting of temperature and pressure, on the kinetics between measure the concentration of the first gas at a plurality of time points and to thereby monitor the rate at which the balance between nitrogen dioxide and nitrogen monoxide changes in response to the effects of the equilibrium altering means.

Patent Docket: 7000/1
Serial No. 09/774,157

8. (Currently Amended): A method for calculating the concentration of one or more of nitrogen dioxide, nitrogen monoxide and ozone in air, the method comprising the steps of:
activating an equilibrium altering means for changing the kinetics between nitrogen monoxide and nitrogen dioxide in the presence of ozone and oxygen in an air sample;
taking at least three readings of the concentration of a first gas selected from the group consisting of nitrogen dioxide, nitrogen monoxide and ozone, wherein at least one of the at least three readings is taken before the changes caused by the equilibrium altering means reach a steady state and at least one of the readings is taken when there has been a change in the kinetics of the reaction; and
calculating, on the basis of the at least three readings, the concentration of the air sample of at least one gas selected from the group consisting of nitrogen dioxide, nitrogen monoxide and ozone. ~~The instrument of claim 3, wherein the instrument is further adapted to measure the concentration of the first gas at a plurality of time points and to thereby monitor the rate at which the balance between nitrogen dioxide and nitrogen monoxide changes in response to the effects of the equilibrium altering means.~~

9. (Currently Amended): The method instrument of claim 8_4, wherein the equilibrium altering means comprises an ultraviolet light source ~~instrument is further adapted to measure the concentration of the first gas at a plurality of time points and to thereby~~

Patent Docket: 7000/1
Serial No. 09/774,157

monitor the rate at which the balance between nitrogen dioxide and nitrogen monoxide changes in response to the effects of the equilibrium altering means.

10. (Currently Amended): The method instrument of claim 9, further comprising the step of switching the ultraviolet source on and off periodically wherein the instrument is further adapted to measure the concentration of the first gas at a plurality of time points and to thereby monitor the rate at which the balance between nitrogen dioxide and nitrogen monoxide changes in response to the effects of the equilibrium altering means.

11. (Currently Amended): The method instrument of claim 8, wherein the at least three readings are taken at distinct points in time, and wherein the concentration of the first gas at the distinct points in time is used to calculate the rate at which the balance between nitrogen dioxide and nitrogen monoxide changes in response to the effects of the equilibrium altering means first gas sensor is an ozone sensor.

12. (Currently Amended): The method instrument of claim 8, wherein the at least three readings are of ozone concentration instrument is further adapted to allow for the effects of at least one factor, which factor is selected from the group consisting of temperature and pressure, on the equilibrium between nitrogen dioxide and nitrogen monoxide.

Patent Docket: 7000/1
Serial No. 09/774,157

13. (Currently Amended): The A method of claim 8, further for calculating the concentration of one or more of nitrogen dioxide, nitrogen monoxide and ozone in air, the method comprising the steps of allowing for the effects of at least one factor, which factor is selected from the group consisting of temperature and pressure, on the equilibrium between nitrogen dioxide and nitrogen monoxide;

~~activating an equilibrium altering means for changing the equilibrium between nitrogen monoxide and nitrogen dioxide in the presence of ozone and oxygen in an air sample;~~

~~taking at least three readings of the concentration of a first gas selected from the group consisting of nitrogen dioxide, nitrogen monoxide and ozone, wherein at least one of the at least three readings is taken before the changes caused by the equilibrium altering means reach a steady state; and~~

~~calculating, on the basis of the at least three readings, the concentration in the air sample of at least one gas selected from the group consisting of nitrogen dioxide, nitrogen monoxide and ozone.~~

14. (Currently Amended): A computer program which, when loaded onto a computer is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 8-13, wherein the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone equilibrium altering means comprises an ultraviolet light source.

Patent Docket: 7000/1
Serial No. 09/774,157

15. (Currently Amended): A computer program which, when loaded onto a computer is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 9-14, wherein the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone further comprising the step of switching the ultraviolet source on and off periodically.

16. (Currently Amended): A computer program which, when loaded onto a computer is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 10-13, wherein the equilibrium altering means comprises a means for adding a gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

17. (Currently Amended): A computer program which, when loaded onto a computer is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 11-13, wherein the equilibrium altering means comprises a means for removing at least one gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide, ozone and oxygen.

18. (Currently Amended): A computer program which, when loaded onto a computer is adapted to calculate the concentration of a gas in an air sample in accordance with the

Patent Docket: 7000/1

Serial No. 09/774,157

method of claim 12 +3, wherein the ~~at least three readings are taken at distinct points in time,~~
and

~~wherein the concentration of the first gas is selected from the group consisting of at
the distinct points in time is used to calculate the rate at which the balance between nitrogen
monoxide, nitrogen dioxide and ozone nitrogen monoxide changes in response to the effects
of the equilibrium altering means.~~

19. (Currently Amended): A computer program which, when loaded onto a
computer is adapted to calculate the concentration of a gas in an air sample in accordance
with tThe method of claim 13, wherein the gas is selected from the group consisting of,
nitrogen monoxide, nitrogen dioxide and ozone at least three readings are of ozone
concentration.

20. (Currently Amended): A computer program which, when loaded onto a
computer is adapted to calculate the concentration of a gas in an air sample in accordance
with tThe method of claim 8 +3, wherein said program is disposed on a tangible medium
further comprising the step of allowing for the effects of at least one factor, which factor is
selected from the group consisting of temperature and pressure, on the equilibrium between
nitrogen dioxide and nitrogen monoxide.

Patent Docket: 7000/1
Serial No. 09/774,157

21. (Currently Amended): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 9 +3, wherein said program is disposed on a tangible medium the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

22. (Currently Amended): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 10 +4, wherein said program is disposed on a tangible medium the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

23. (Currently Amended): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 11 +5, wherein said program is disposed on a tangible medium the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

24. (Currently Amended): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 12 +6, wherein said program is disposed on a tangible medium the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

Patent Docket: 7000/1
Serial No. 09/774,157

25. (Currently Amended): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 13 ~~47~~, wherein said program is disposed on a tangible medium ~~the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.~~

Please cancel claims 26-36 without disclaimer of or prejudice to the subject matter contained therein.

26. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 18, wherein the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

27. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 19, wherein the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

28. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the

Patent Docket: 7000/1
Serial No. 09/774,157

method of claim 20, wherein the gas is selected from the group consisting of nitrogen monoxide, nitrogen dioxide and ozone.

29. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 13, wherein said program is disposed on a tangible medium.

30. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 14, wherein said program is disposed on a tangible medium.

31. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 15, wherein said program is disposed on a tangible medium.

32. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 16, wherein said program is disposed on a tangible medium.

Patent Docket: 7000/1
Serial No. 09/774,157

33. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 17, wherein said program is disposed on a tangible medium.

34. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 18, wherein said program is disposed on a tangible medium.

35. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 19, wherein said program is disposed on a tangible medium.

36. (Canceled): A computer program which, when loaded onto a computer, is adapted to calculate the concentration of a gas in an air sample in accordance with the method of claim 20, wherein said program is disposed on a tangible medium.